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ABSTRACT

This student module on first response to medical emergencies is one of 50 modules concerned with job safety and health. This module presents some common medical emergency situations and the recommended responses to them. Following the introduction, 19 objectives (each keyed to a page in the text) the student is expected to accomplish are listed (e.g., State the procedure for helping a choking victim). Then each objective is taught in detail, sometimes accompanied by illustrations. Learning activities are included. A list of references and answers to learning activities complete the module. (CT)

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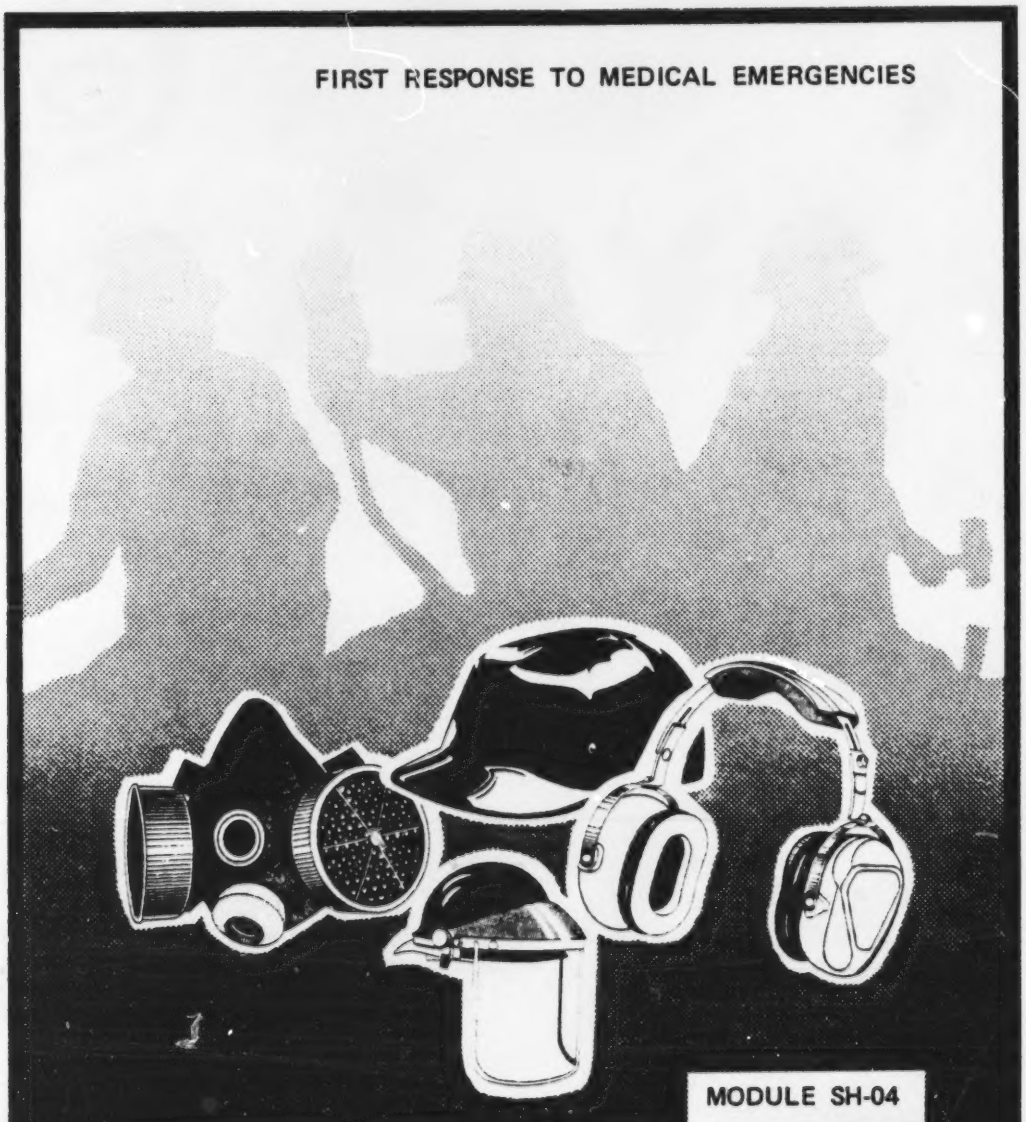
SAFETY AND HEALTH

FIRST RESPONSE TO MEDICAL EMERGENCIES



MODULE SH-04

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INTRODUCTION

Medical emergencies, both minor and critical, occur each day and can happen in any workplace. Since time is a critical factor in many medical emergencies, the first person to arrive at the scene of an accident has a key role in the rescue of a victim. With a knowledge of some common medical procedures and emergency actions, this "first responder" can make a positive contribution to the welfare of the accident victim. In some cases, this contribution can make the difference between life and death. Certain improper responses to medical emergencies by an untrained person can result in aggravated injuries or death.

This module presents some common medical emergency situations and the recommended responses to them. Topics range from how to make an emergency phone call to how to treat the victim of poisoning. Life support procedures (how to open a patient's airway, assist breathing, and restore circulation) are emphasized. Among the emergency treatments discussed are those for excessive bleeding, amputation, allergic reactions, and broken limbs.

This module is not designed as a training course. Procedures for cardiopulmonary resuscitation (CPR), for example, should be applied only by a trained person, and while a layperson can follow most of the other methods effectively, further training is recommended.

OBJECTIVES

Upon completion of this module, the student should be able to:

1. Identify by the symptoms of each ten types of emergencies that may be encountered by a first responder. (Page 3)
2. List the information a caller reporting a medical emergency should provide. (Page 5)
3. Identify the ABCs of life support, and describe the first of these procedures. (Page 6)
4. Outline the procedure for rescue breathing (mouth-to-mouth resuscitation). (Page 10)

5. State when CPR is used, and the procedures involved. (Page 14)
6. State the procedure for helping a choking victim. (Page 16)
7. Describe the treatment prescribed for victims of allergic reactions. (Page 18)
8. Describe the prehospital care of an amputation. (Page 19)
9. Outline the procedure used to stop bleeding. (Page 20)
10. Describe the care to be given a patient suspected of having a broken bone. (Page 21)
11. List the things that one should not do when treating a victim suspected of having neck, head, or back injury. (Page 22)
12. List the early warning signs of a heart attack and outline the first responses. (Page 23)
13. Differentiate between the care of a major heat (thermal) burn and a chemical burn. (Page 24)
14. Describe the symptoms of carbon monoxide poisoning. (Page 26)
15. Outline the procedures for treating a drowning victim. (Page 27)
16. Describe the symptoms of cold exposure and frostbite and tell how each should be treated. (Page 27)
17. Describe two safe ways of separating a victim from a source of electrical current. (Page 29)
18. List four ways that poisons can enter the body. (Page 30)
19. Describe the symptoms and treatment of seizures. (Page 31)

OBJECTIVE 1: Identify, by the symptoms of each, ten types of emergencies that may be encountered by a first responder.

A knowledge of symptoms common to certain medical emergencies can help the first person on the scene of an accident to assess the situation. This first responder can diagnose the problem, perform emergency first aid, and thus can sometimes make the difference between life and death. A description of ten medical emergencies and the symptoms of each follows. Suggestions for action in four other types of emergencies are given also.

CHOKING: A victim of choking cannot breathe or talk, and thus can be distinguished from a heart attack victim, who can usually do both. The choking victim may make alarming attempts to breathe in, and produce crowing sounds. The face, neck and hands may assume a bluish or purple hue.

ALLERGIC REACTION: An allergic reaction to a substance causes a variety of symptoms, including itching or burning skin, swelling of the face and tongue, bluish lips, difficulty in breathing, dizziness, faintness, and an undetectable pulse.

HEART ATTACK: Symptoms of heart attacks include chest discomfort, which may include squeezing, fullness or pain, as well as weakness, nausea, sweating, shortness of breath, anxiety, and thirst.

SEIZURES: The victim of a seizure will often fall down, become rigid, and may begin to jerk and shake. Sometimes this will be accompanied by odd noises, rolling of the eyes, drooling from the mouth, and loss of bladder and bowel control.

ELECTRICAL SHOCK: Electrocution may produce burns, injuries suffered from falling, spasms or paralysis of the breathing muscles, and irregular contractions of the muscles of the heart.

BURNS: The usual signs of serious burns are a red or mottled appearance of the skin, blisters, swelling, and a wet appearance of the skin

surface. Extremely serious burns will show deep tissue destruction, and the skin will have a white or charred appearance.

CARBON MONOXIDE POISONING: This type of poisoning gives no warning, since the gas is odorless and colorless, and the initial symptoms are simply dizziness, weakness, and headache. The telltale symptom is the cherry red color of the lips.

COLD EXPOSURE: Any time body heat is lost rapidly in a cold environment, cold exposure results. Some of its symptoms are violent shivering, poor coordination, difficulty in speaking, loss of memory, and drowsiness that leads to unconsciousness.

FROSTBITE: The first symptom of frostbite is the reddening of the skin, usually on ear lobes, nose, and cheeks. The skin appears to have gray or white patches and then becomes totally white.

POISONING: Ingested (swallowed) poisons produce a variety of symptoms. There may be burns, odors, or stains around the mouth, as well as nausea, vomiting, and diarrhea. The pupils may be dilated or constricted, and the breathing rate may be abnormal. Excessive salivation or sweating and convulsions can occur, then unconsciousness. Inhaled poisons produce dizziness, weakness, headaches, and some symptoms characteristic of the vapor inhaled (for example, the cherry red lips of carbon monoxide poisoning).

DROWNING: Victims of drowning usually die from lack of air, so mouth-to-mouth resuscitation (rescue breathing) must be given immediately.

AMPUTATION: Any time there is an accident involving great force or excessive bleeding, check for an amputation. If there is partial amputation of a limb, elevate the limb above the heart and raise the legs 10 to 12 inches to treat for shock.

BLEEDING: External bleeding is usually obvious, and should be controlled with constant, direct pressure to the wound. Internal bleeding will often produce coughed-up blood, or blood in the urine or feces.

NECK, HEAD, OR BACK INJURIES: Victims of these injuries must be treated with extreme care to protect the spinal cord, and generally should not be moved.

BROKEN BONES: Broken bones are usually not serious, but care should be taken to avoid moving the patient, or pushing the bone back into place.

ACTIVITY 1:*

Match the symptoms in column A with the medical emergency in column B.

	A	B
____ a.	Dizziness, weakness, headache cherry red lips.	Heart Attack
____ b.	Blisters, swelling, wet appearance of the skin.	Carbon monoxide poisoning
____ c.	Chest discomfort, nausea, anxiety, thirst.	Burn

OBJECTIVE 2: List the information a caller reporting a medical emergency should provide.

In the event of a medical emergency precious time can be saved by the use of the proper procedure in calling for help. In true emergency situations, time is the crucial factor in determining whether the injured or ill person lives, dies, or is permanently disabled. Valuable time can be saved by familiarizing all personnel with the correct calling procedures.

Posting emergency telephone numbers next to every telephone is the first step in preventing unnecessary delays in the arrival of emergency medical personnel. The next step is to review emergency procedures periodically, so that in the event of a medical emergency each person will be prepared to respond in a calm and efficient manner.

The more familiar everyone becomes with the signs and symptoms of medical emergencies, the easier the decision is to make as to whether emergency help is needed. If you are not sure whether help is required,

*Answers to Activities appear on page 33.

give the patient the benefit of the doubt and summon emergency medical personnel promptly. Be prepared to follow these procedures:

1. Call the correct number.
2. Remain calm. It is difficult to get pertinent information from a hysterical caller.
3. State clearly where help is needed. Give the name of the business or company, street address, and any important landmarks. It may be necessary to give detailed directions for locations not well known.
4. Tell why you called. The more information that is provided to the dispatcher the more efficient the help that will arrive. Do not forget to give as many details about the patient's condition as possible.
5. Do not hang up until all the facts are given. Many times help is delayed by an excited caller asking for an ambulance and then hanging up before giving an address.
6. Have someone go out to the road and "wave in" the emergency help.

ACTIVITY 2:

When reporting an emergency, the caller should:

a. _____

b. _____

c. _____

d. _____

e. _____

OBJECTIVE 3: Identify the ABC of life support, and describe the first of these procedures

Once a call for emergency medical help has been made, there are three procedures that may save the patient's life. These three procedures, listed below, are called the ABC of life support.

A - Open the Airway.

B - Assist with Breathing.

C - Restore Circulation.

There are two methods for opening the victim's airway, and they depend on whether the victim is conscious or not. To determine if the patient is

conscious, shake him or her gently, shouting, "Are you okay?" If there is no response, follow these procedures:

- Keeping head and neck supported, roll the patient onto his or her back.
- Loosen any tight clothing around the patient's neck and chest.
- With one hand placed under the victim's neck and the other placed on the forehead, tilt the head back and extend the neck (Figure 1).

Figure 1. With one hand under the victim's neck and the other placed on the forehead, tilt the head.

For patients with a suspected neck or back injury use the following procedure: place your hands on either side of the victim's head (to maintain the head and neck in a fixed position) and use your index fingers to move the jaw forward. After opening the airway, check for breathing.

- Look at the chest and stomach to see if they rise and fall.
- Listen for breathing by placing your ear by the victim's mouth.
- Feel the patient's breath by placing your cheek above the victim's mouth and nose.

If none of these signs is present, you must begin breathing for the patient immediately. Remember you only have four to six minutes to save this person's life.

For infants and children the procedure for opening the airway is the same as for an adult, but the head tilt is done more carefully because the immature breathing passage is more pliable and can be blocked if the head is tilted too far.

If an adult person is conscious and cannot breathe, you can assume that the airway is blocked. Apply the following techniques:

- Give the victim four sharp blows between the shoulder blades, with your hand flat.

- If the back blows do not work, give four abdominal thrusts. To do this, follow these steps:

1. Stand behind the victim and wrap your arms around his or her waist. (Figure 2.)

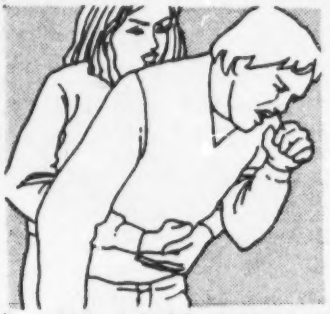

Figure 2. Stand behind the victim; wrap your arms around the waist.

2. Make a fist with one hand and place the thumb side against the victim's abdomen. (Figure 3.)
3. Grasp your fist with your other hand and pull toward you into the victim's abdomen with a quick upward thrust (Figure 3).
   Note: The four thrusts should be to the chest if the victim is pregnant or obese. Chest thrusts should be done in the same way as abdominal thrusts.

Figure 3. Make a fist; grasp fist with other hand and pull toward you.

4. Check the victim's airway and if it is still obstructed repeat with four back blows and four thrusts.
5. Repeat the cycle of four back blows and four abdominal or chest thrusts (checking the airway after each cycle) until the blockage is cleared or until the person becomes unconscious.

For infants and small children the procedure for clearing a blocked airway is different from that used with adults. For infants, position the victim over your arm with the head lower than the trunk (Figure 4) and follow these procedures:

- Give four sharp pats between the shoulder blades.
- Turn the infant over so that it is straddling your arm backwards with the head in your hand, and give four chest thrusts with your other hand.
- Open the mouth and remove obstructions only if clearly visible.
- Repeat the cycle until breathing is established, or until the victim is unconscious.

Figure 4. Position the child over the arm.

For a small child: kneel on the floor and lay the victim across your thighs, keeping the head lower than the trunk. Deliver four back blows. Then roll the child onto the floor and give four chest thrusts. Remember the following precautions for blocked airway procedures in infants and children.

- Do not use abdominal thrusts. Use only chest thrusts.
- Do not probe in the mouth unless the obstruction can be clearly seen.
- Use both back blows and chest thrusts.
- Repeat the cycle until breathing is established, or until the victim is unconscious.

ACTIVITY 3:

1. What is the ABC of life support?

   A _____

   B _____

   C _____

2. Name the two types of victims on which the head tilt may not be carried out in the usual way:

   a. _____

   b. _____

3. Name two types of victims for which abdominal thrusts should be replaced by chest thrusts.

   a. _____

   b. _____

OBJECTIVE 4: Outline the procedure for rescue breathing (mouth-to-mouth resuscitation).

If breathing does not occur after opening the patient's airway, you must begin rescue breathing. Enough oxygen is contained in your exhaled breath to be beneficial to the patient. Breathing attempts should be started before trying to remove any foreign matter from the airway, although the mouth of an adult may be wiped out with a handkerchief or other cloth (if available) over your index finger. For adult patients, the procedures are as follows:

1. Maintain an open airway by supporting the neck and holding the forehead as described previously.
2. Pinch the nostrils with the thumb and index finger of the hand applying pressure on the forehead. (Figure 5.)

Figure 5. Pinch the nostrils.

3. Open your mouth widely to take a deep breath, make a tight seal with your mouth over the patient's mouth, and blow until you see the chest rise. (Figure 6.)

Figure 6. Make a tight seal with your mouth over the patient's mouth, and blow.

4. Still maintaining the airway, remove your mouth from the patient's and allow the air to escape from the patient's mouth (Figure 7). While performing this procedure place your ear over the patient's mouth and listen for escaping air as the chest falls. If air is escaping and the chest falls, your rescue breathing is working. If air does not move easily into and out of the patient, the airway is blocked and must be cleared before proceeding.

Figure 7. Place your ear over the patient's mouth.

5. If the chest does rise and fall, give four quick breaths in rapid succession without removing your mouth from the patient's and without waiting for the lungs to deflate completely. (This is called ventilating.)
6. Take the hand supporting the neck of the patient and feel for the carotid pulse, to check if the heart is beating. To locate the carotid pulse, place the index and middle finger on the voice box (Adam's apple) and slide them back to the groove behind the voice box. Feel gently to see if a pulse is present.
7. If the pulse is present, continue rescue breathing by ventilating the lungs 12 times per minute (once every five seconds) and continue to watch the chest to check for effectivenss. Continue breathing until professional help arrives to take over or until the patient begins to breathe alone. Frequently check the patient for a pulse.

For infants and small children the procedure is as follows:

1. Maintain the open airway using the technique for infants and small children, remembering not to overextend the neck.
2. Do not pinch the nostrils but instead cover both the mouth and nose with your mouth. (Figure 8.)
3. Do not blow forcefully - use only small puffs of air from your cheeks to inflate the lungs.

Figure 8. Cover the mouth and nose of a small child with your mouth.

4. Listen and watch the chest for exhaled air. If there is no exhaled air the airway is blocked and must be cleared.
5. If your ventilation is effective, give four quick breaths without removing your mouth from the patient's.
6. Check for the brachial pulse, located on the inside of the arm above the elbow.
7. If the pulse is present continue rescue breathing at a rate of one breath for every three seconds, or 20 times per minute (for an infant). For a child, breathe once every four seconds, or 15 times per minute.

ACTIVITY 4:

Mark these statements true or false.

_____ 1. In rescue breathing, an adult patient receives 15 breaths per minute.

_____ 2. In rescue breathing, a child patient receives 20 breaths per minute.

_____ 3. In rescue breathing, the mouth of the rescuer is placed over a child victim's mouth and nose.

_____ 4. A rescuer pinches the nostrils of an adult patient shut while blowing into the mouth.

OBJECTIVE 5: State when CPR is used, and the procedure involved.

Often, the circumstances that cause a person to stop breathing can also cause the heart to stop beating and the circulation to stop. In these situations, cardiopulmonary resuscitation (CPR) is required. CPR is a method by which the rescuer's hands create the pressure that pumps the blood, and coordinate this pressure with rescue breathing. While CPR is appropriate any time a person's heart has stopped beating, it should be applied ONLY by a person trained in this method by a recognized source (such as the American Red Cross or the American Heart Association).

The following discussion of CPR methods is not intended to be a training course in CPR. It represents only an overview of the complete process.

ADULT CPR

For adult patients the procedure is as follows:

1. Check for responsiveness. (Shake gently and shout: "Are you okay?")
2. If the person is not breathing, have someone else call for help and place your mouth over the victim's, giving four quick breaths. Then check for the carotid pulse (near the Adam's apple). If no pulse is present, the chest compression must be done using the steps below.
3. Place two fingers of one hand on the lower end of the breastbone. Place the heel of the other hand on the breastbone, with the base of the thumb touching the two fingers. The heel of the hand should be on the long axis of the breastbone, with the other hand on top of the first. Link the fingers of both hands together and pull them back.
4. Position your shoulders directly over the center of the patient's chest. Keeping your arms straight, press down (using your body weight, not your arm muscles) approximately one and a half to two inches (for an adult).
5. Release the pressure, allowing the chest to resume its normal position. Repeat the procedure as follows:
   a. With one rescuer: Do 15 compressions followed by two quick breaths, at a rate of 80 compressions per minute.
   b. With two rescuers: Do 15 compressions followed by one quick breath, at a rate of 60 compressions per minute.

c. One minute after CPR, check for the carotid pulse for no more than five seconds. If no pulse is present, continue CPR, then check every four or five minutes for the pulse.

INFANT CPR

For infant victims, the procedure for CPR is:

1. Follow the correct procedure for opening and maintaining the airway, checking for breathing, and checking for pulse in the infant.
2. The compressions are done with only two fingers at the nipple level on the breastbone.
3. Compress the chest a half to one inch at a rate of 100 times per minute and give one breath after every five compressions.

CHILD CPR

For children, CPR is done as follows:

1. Follow the correct procedure for opening and maintaining the airway, checking for breathing, and checking for pulse in the child.
2. For children only the heel of one hand is used and it is placed over the middle of the breastbone. A firm support beneath the back is required for chest compressions and can be provided by the rescuer slipping one hand beneath the child's back while using the other hand to compress the chest.
3. Compress the chest to one to one and a half inches at a rate of 80 times per minute, and give one breath after every five compressions.

CPR should be given only by trained personnel, but if no help is available a rescuer is protected (in many states) by the Good Samaritan law. This law frees a rescuer from liability in efforts made to save a person's life.

ACTIVITY 5:

Mark these statements true or false.

_____ 1. CPR is given whenever a patient stops breathing.

_____ 2. CPR should be performed only by people who have been trained by an accredited group such as the Red Cross or Heart Association.

____ 3. CPR can be initiated anytime within 15 minutes of the time a person's heart stops beating, to prevent brain damage.

____ 4. The proper position for the hands during CPR is side by side directly over the breastbone.

____ 5. Compression should be given at a rate of 80 per minute in one person CPR and 60 per minute in two-person CPR for an adult victim.

OBJECTIVE 6: State the procedure for helping a choking victim.

A choking victim demonstrates signs and symptoms different from those of a person stricken by a heart attack. Heart attack victims can usually still breathe and talk, whereas the choking victim cannot. When the airway is blocked and no air can pass through the vocal cords, the brain's oxygen supply is cut off and the patient can die within four to six minutes.

If the person can speak, breathe, or cough, leave them alone. Coughing is a natural reflex of the body to attempt to remove a blockage or a foreign body in the airway. The body may be able to expel the object, but if you interfere during the coughing process you may complicate the situation. If the person cannot speak, breathe, or cough, and is conscious, you may assume that the airway is blocked. You can assist the adult choking victim by following these steps:

- Give the victim four sharp blows between the shoulder blades using your hand flat.
- If the backblows do not work you must give four abdominal thrusts, using the following procedures:

1. Stand behind the victim and wrap your arms around his or her waist.
2. Make a fist with one hand and place the thumb side against the victim's abdomen.
3. Grasp your fist with your other hand and pull toward you into the victim's abdomen with a quick upward thrust.
   Note: The four thrusts that should be used on obese persons and pregnant women are chest thrusts, delivered in the same way as abdominal, but to the chest.

4. Check the victim's airway and if it is still obstructed repeat the four back blows and four thrusts.
5. Repeat the cylce of four back blows and four abdominal or chest thrusts thrusts (checking the airway after each cycle) until the blockage is blockage is cleared or until the person becomes unconscious. (Figures 2 and 3 may be referred to for this process).

If the choking victim is unconscious:

1. Have someone else call for rescue personnel.
2. Place the patient on his or her back.
3. Open the airway and attempt rescue breathing.
4. If the patient's chest does not easily rise and fall, roll the person toward you and apply four back blows.
5. If the back blows are unsuccessful, roll the victim onto his or her back and give four abdominal or chest thrusts.
6. If unsuccessful, open the patient's mouth, probe with your finger into the throat, using a hooking action to remove the obstruction.
7. These procedures should be repeated until you are successful or professional help arrives.

For infants and children, the procedure for clearing a blocked airway is different from that used with adults. The infant should be straddled over your arm with the head lower than the trunk. These procedures should then be followed:

1. Give four sharp pats between the shoulder blade.
2. Turn the infant over so that it is straddling your arm backwards and give four chest thrusts.
3. Open the mouth and remove obstructions only if clearly visible.

For a small child, kneel on the floor and lie the victim across your thighs, keeping the head lower than the trunk. Deliver four back blows, then roll the child onto the floor and give four chest thrusts. Remember the following precautions for blocked airway procedures in infants and children:

- Do not use abdominal thrust. Use only chest thrusts.
- Do not probe in the mouth unless the obstruction can be clearly seen.
- Use both back blows and chest thrusts.

- If the choking victim has swallowed the object but appears to be doing fine, take him or her to the hospital immediately. Even though the patient appears fine, a swallowed object can cause severe internal damage.

ACTIVITY 6:

Complete the following statements:

1. Heart attack victims can _____ and _____, whereas choking victims _____.
2. When a person's airway is blocked and no air can pass through the vocal cords, the patient can die within _____ to _____ minutes.

OBJECTIVE 7: Describe the treatment prescribed for victims of allergic reactions.

Some people have severe allergic reactions when exposed to bee stings, snake or insect bites, or certain foods or drugs. If you suspect that someone has an allergic reaction and is experiencing any of these following symptoms, rescue personnel should be called immediately.

- Itching or burning skin, especially about the face and chest (the skin may also be flushed).
- Swelling of the face and tongue.
- Lips having a bluish color.
- Difficulty in breathing; wheezing; tightness or pain in the chest.
- Dizziness, faintness, undetectable pulse, or a coma state.

Emergency care procedures for victims of allergic reactions include the following:

1. Have someone else call for rescue personnel.
2. If the victim is unconscious, follow the ABC of life support. (A - open the airway; B - assist with breathing; C - make sure circulation continues.)
3. Cover the patient to prevent the loss of body heat, but do not overheat the person.

4. Keep the victim lying down. Unnecessary movement increases circulation and spreads the poisons more rapidly.
5. Raise the legs 10 to 12 inches to return blood flow back to the vital organs.
6. Do not give anything by mouth.

ACTIVITY 7:

List three things you should do for a person suffering from an allergic reaction.

1. _____
2. _____
3. _____

OBJECTIVE 8: Describe the prehospital care of an amputation.

Accidents involving violent forces can sometimes sever a part of a person's body and thus result in a life-threatening situation. The severed part or limb should be saved and transported with the patient to the hospital. Treatment of an amputation includes these steps:

1. Have someone else call for rescue personnel.
2. Follow the ABC of life support (open airway, assist breathing, restore circulation).
3. Do not make any attempt to wash or cleanse the wound. Do not apply any medication, salves, or ointments to the wound.
4. Apply a dry sterile bandage and hand pressure to the wound site.
5. Elevate the limb above the heart and raise the legs 10 to 12 inches to treat for shock.
6. Give nothing by mouth.
7. Save the amputated part. Do not wash or cleanse the injury site. The part should be placed on ice (not in iced water) and should be kept dry. Replace the ice as necessary.

If a part of the body is only partially severed, follow the steps outline above and these additional steps:

1. Keep the body part in its natural position.

2. Keep the limb dry and elevated above the level of the heart.
3. Keep the injured area cool with ice.

ACTIVITY 8:

Mark these statements true or false.

_____ 1. In the case of an amputation, the stump and amputated part should be flushed thoroughly with sterile water to wash away dirt that might cause infections.

_____ 2. An amputated limb should be transported on bags of ice so that it will not get wet.

_____ 3. A clean dry bandage should be applied to the stump, and pressure applied to stop the bleeding.

OBJECTIVE 9: Outline the procedure used to stop bleeding.

Loss of blood can be life-threatening. By following some basic procedures, you can stop dangerous bleeding. Direct pressure is used most commonly, and usually controls all bleeding except the most severe. Tourniquets should be used as a last resort, and only by someone trained in their use. Since the sight of blood can induce panic, a calm manner is essential. Have someone else call for rescue personnel and follow these steps:

1. If the victim has lost consciousness, follow the ABC of life support (open the airway, assist breathing, restore circulation).
2. Using a sterile bandage, cover the wound and apply constant, direct pressure until rescue personnel arrive. If sterile materials are not available, use a handkerchief or other piece of cloth, or your bare hand if necessary.
3. If the bandage becomes blood-soaked do not remove it. Place another bandage over the first, and reapply firm pressure.
4. Elevate a bleeding limb above the body 10 to 12 inches while still applying pressure. Do not elevate the limb if you suspect that the limb might be broken.
5. If bleeding is from a head wound, apply direct pressure without concern about hair getting into the wound.

6. Elevate the patient's feet and legs about 10 to 12 inches to help prevent severe shock. Maintain the patient's body heat but do not overheat. Do not give anything by mouth.
7. Do not make any attempt to cleanse the wound.

ACTIVITY 9:

(Fill in the blanks.)

1. If a bleeding victim is unconscious, follow the ____ of life support.
2. Using a sterile bandage, cover a bleeding wound and apply _____, _____ pressure.
3. If the bandage becomes blood-soaked, _____ _____ _____ _____ it.
4. If you do not have a bandage, use a _____, _____ _____ _____, or your b_____ _____.
5. To help prevent severe shock, _____ the patient's feet and legs about _____ inches.

OBJECTIVE 10: : Describe the care to be given a patient suspected of having a broken bone.

In most instances broken bones are not dangerous but the patient should not be moved except when further injury can occur (such as in a fire, or on a busy road). Emergency care for broken bones includes the following procedures:

1. Do not move the patient except to remove him or her from danger.
2. Have someone else call for rescue personnel.
3. If the victim has lost consciousness, follow the ABC of life support (open airway, assist breathing, restore circulation).
4. Using a sterile bandage, if available, cover any bleeding wound where there is not protruding bone, and apply pressure to it.
5. Keep the patient lying down and covered to maintain body heat. Give nothing by mouth.

6. Do not make any attempt to straighten an injured limb. Do not attempt to push a protruding bone back into place. Do place a sterile bandage over the wound, but do not apply pressure.

ACTIVITY 10:

If a victim is suspected of having a broken bone, do NOT

1. _____
2. _____
3. _____

OBJECTIVE 11: List the things that one should not do when treating a victim suspected of having neck, head, or back injury.

Any accident that involves a great force to the head, neck, or back, whether it be a severe blow, or binding or twisting of these areas, could result in a head, neck, or back injury. In treating the victim of such an accident, use extreme caution. Any movement could sever the spinal cord and result in paralysis. In this circumstance, what you do not do is very important. Emergency care consists of the following steps:

- Have someone else call for rescue personnel.
- Do not move the patient unless there is extreme danger present, such as an explosion, fire, or toxic fumes.
- Do not move the head or neck, even if the victim says he or she is uncomfortable.
- If the victim is unconscious, follow the ABC of life support open airway (keeping the head in a fixed position and opening the jaw, as explained in OBJECTIVE 3); check breathing; restore circulation.
- Do not give anything by mouth.

ACTIVITY 11:

(Underline the correct answer.)

You (should/should not) help a victim suspected of having a neck or back injury to a more comfortable position.

OBJECTIVE 12: List the early warning signs of a heart attack and outline the first responses.

Almost 4.5 million people have some type of coronary heart disease. There are over half a million deaths each year from heart attack, and about half of these victims die before reaching the hospital. Many of these deaths could have been prevented if warning signs were recognized and prompt actions taken. Time is crucial since delay can result in death.

SYMPTOMS (EARLY WARNING SIGNS)

The symptoms of a heart attack are similar to symptoms of other illnesses, but if one or more of those listed below persist for more than a few minutes, a heart attack is likely to be the cause.

- Unconsciousness.
- Uncomfortable pressure, squeezing, fullness, or pain that originates in the front part of the chest and spreads to the shoulder, arm, and hand. Numbness in these areas may be experienced.
- Shortness of breath due to the diminished supply of blood to the lungs.
- Apprehension and fear.
- Restlessness.
- Sweating, nausea, and weakness.
- All the symptoms of shock (weakness, dizziness, nausea, thirst, coolness, and a feeling of impending doom).

The symptoms vary in accordance with the severity of the attack and the amount of damage to the heart.

EMERGENCY TREATMENT

Have someone call emergency personnel while you follow these procedures. If the patient is conscious, help him or her become as comfortable as possible. Loosen clothing around the neck and chest. Stay calm and reassure the patient.

If the patient is unconscious, follow the ABC of life support (open the airway, assist breathing, restore circulation).

Time is extremely important. When CPR (CardioPulmonary Resuscitation) is needed, the earlier it is begun, the greater the victim's chances of survival. See Table 1.

TABLE 1. HEART ATTACK RECOVERY RATES.

CPR Started In	Chance of Recovery
1 minute	95%
2 minutes	88%
3 minutes	75%
4 minutes	50%
5 minutes	25%
6 minutes	12%
7 minutes	6%
8 minutes	2%
9 minutes	0%

ACTIVITY 12:

List five early warning signs of heart attack.

1. _____
2. _____
3. _____
4. _____
5. _____

OBJECTIVE 13: Differentiate between the care of a major heat (thermal) burn and a chemical burn.

MINOR HEAT BURNS

Minor heat burns usually cause reddening of the skin without blisters, and an ambulance is not usually needed. If any doubt exists, call for

help. Emergency care for minor burns consists of the following procedures:

- Do not apply butter, oil, or grease to any burn. This increases the chance of infection, makes cleaning more difficult, and can cause further injury.
- Apply cool water or immerse the affected part in cool water. Do not use ice water.
- Apply a sterile dressing.

MAJOR HEAT BURNS

Major heat burns are serious and involve severe tissue damage. Emergency personnel should be called at once. Emergency care for a major heat burn consists of seven steps:

1. Have someone else call for rescue personnel.
2. Calm and reassure the patient that help has been called. Keep the patient lying down.
3. If the patient has lost consciousness, proceed with the ABC of life support (open the airway, assist with breathing, restore circulation).
4. Use a clean, dry sheet to wrap the person. Do not use rough or badly worn blankets or spreads, since the fibers or the lint from these could cause further contamination of the burn.
5. Do not use ointments, sprays, oil, butter, or grease.
6. Do not remove materials sticking to the skin or attempt to open blisters.
7. Do not give anything by mouth, not even water.

CHEMICAL BURNS

Many chemicals in widespread use can cause injury to both the skin and eyes. Emergency care for chemical burns includes the following steps:

1. Have someone else call for rescue personnel.
2. If the patient has lost consciousness, proceed with the ABC of life support (open the airway, assist with breathing, restore circulation).
3. Flush the affected area with water until rescue personnel arrive. This dilutes or removes any remaining chemical.
4. Remove all contaminated clothing, including shoes and socks, from the patient.
5. Cover the affected area with a sterile dressing.

ACTIVITY 13:

Name two differences in the treatment of major thermal and chemical burns.

1. _____

_____

2. _____

_____

OBJECTIVE 14: Describe the symptoms of carbon monoxide poisoning.

Carbon monoxide poisoning results from the incomplete combustion of fuels containing carbon, and so is possible wherever there is a source of combustion. Factors that contribute to this type of poisoning are burning in enclosed areas, indoor barbecues, a leaky automobile exhaust, or a faulty home heating system. Carbon monoxide is a particularly dangerous gas since it is colorless and odorless. Thus, the victim may lose consciousness and be suffocated with very few warning signals. Since carbon monoxide combines extremely rapidly with the hemoglobin in the red blood cells, death can occur in a few minutes. The symptoms of carbon monoxide are dizziness, weakness, headache, and lips that become cherry red.

When carbon monoxide poisoning is suspected, have someone else call for rescue personnel. Then, taking care not to become a victim yourself, move the victim from the contaminated area into fresh air. If the victim is unconscious, follow the ABC of life support (open the airway, assist with breathing, make sure circulation continues).

ACTIVITY 14:

List four symptoms of carbon monoxide poisoning.

1. _____
2. _____
3. _____
4. _____

OBJECTIVE 15: Outline the procedures for treating a drowning victim.

Drowning occurs when a person's air supply is cut off underwater. Death can occur rapidly, so rescue breathing (mouth-to-mouth resuscitation) should be given immediately. If possible, have someone call for rescue personnel and begin treatment of the victim. Be careful of a possible neck or back injury, particulary in a diving accident, and if one is suspected, do not move the head or neck. Follow the ABC of life support (open airway, assist breathing, restore circulation). Begin the treatment while the patient is in the water, if necessary. Do not attempt to remove water from the lungs. Water in the lungs or stomach does not kill a person, but the lack of air does. Continue rescue breathing, then CPR (if you are trained in this technique) until professional help arrives. If the victim regains consciousness, help him or her to lie down and keep warm until rescue personnel arrive.

ACTIVITY 15:

What should be done for a drowning victim?

_____

_____

OBJECTIVE 16: Describe the symptoms of cold exposure and frostbite and tell how each should be treated.

A rapid loss of body heat occurring in a cold environment creates an emergency situation. Body heat is lost due to prolonged exposure to unusually low temperatures. The extent of harm that such a situation causes depends on factors such as the length of exposure, the temperature, humidity, whether the person is wet or dry, and what the wind velocity is. Some of the symptoms of exposure are:

- Severe shivering, resulting from the body's attempt to generate warmth and achieve a normal temperature.
- Poor coordination, with stumbling, and difficulty in speaking.
- Loss of memory.
- Drowsiness.
- Unconsciousness.

Frostbite is cold exposure carried to an extreme. The areas of the body most prone to frostbite are the hands, feet, and nose. The first symptom is reddening of the exposed skin, which subsequently appears to have gray or white patches (especially on the ear lobes, nose, and cheeks). As circulation decreases, a loss of sensation occurs and the skin becomes dead white.

The emergency treatment for cold exposure and frostbite are basically similar. The first step in the treatment of both is to have someone call for rescue personnel, then to apply the ABC of life support (open airway, assist breathing, restore circulation). Bring the victim out of the cold and remove wet clothing. Wrap the victim in warm blankets or clothing. The victim of frostbite should have the affected area warmed gently with warm water or warm towels. The area should not be rubbed. Heating pads and hot water bottles should not be used for the frostbite victim, but are helpful to the victim of mild cold exposure. Warm liquids other than alcohol should be given by mouth to victims of either injury.

ACTIVITY 16:

Mark these statement true or false.

____ 1. The symptoms of cold exposure include intense shivering, loss of memory, and drowsiness.

____ 2. A frost-bitten area should be rubbed vigorously to restore circulation.

____ 3. Victims of frostbite or cold exposure should not be given anything to drink.

OBJECTIVE 17: Describe two safe ways of separating a victim from a source of electrical current.

The danger of the low-voltage current in houses is often underestimated. Electrocution from such a current is fairly common, and results in stopping a person's breathing and heartbeat. In helping a victim of electrocution, great care must be taken so that the rescuer is not electrocuted as well.

The first step in helping a victim of electrocution is to separate the victim from the source of electrical current using one of two methods. Try turning off the power source by pulling a plug, removing a fuse, or throwing a circuit breaker. If it is impossible to turn off the current, grab a nonconductive object (such as a wooden stick or a fiber rope) to separate the victim from the source of current. Make sure you are insulated from the ground by standing on dry newspapers, a dry rubber mat, or a dry piece of wood, then pull or push the victim away from the current source.

After the victim is free from the electrical source, follow the ABC of life support (open airway, assist breathing, restore circulation). Do not give anything by mouth. Electrical burns are usually severe but may not appear so because most tissue damage occurs below the skin surface. They usually have an entry point and an exit point indicating where the current flow entered and exited the body. Cover both wounds with a sterile dressing.

ACTIVITY 17:

1. Name the first step in treating the victim of electrical shock. _____

   _____

2. List two ways of safely separating a victim from a source of electrical current.

   a. _____

   b. _____

OBJECTIVE 18: List four ways that poisons can enter the body.

Poison can enter the body by four routes: ingestion (by mouth), inhalation (by breathing in), absorption (through the skin), and injection (into the bloodstream). If you suspect a patient is suffering from any of these methods of poisoning, the following procedures should be carried out.

- Have someone call rescue personnel.
- Follow the ABC of life support (open airway, assist breathing, restore circulation).
- Do not give anything by mouth.
- Find the container of poison (if applicable), and send it to the hospital with the patient.

If the patient is conscious, and vomiting:

1. Roll the patient onto his or her side so that vomitus will not choke the patient.
2. Call your local poison information center. Give them your telephone number and any information you have available. Follow any directions they give.

If the patient is still conscious and not vomiting:

1. Sweep the mouth to remove any substances remaining.
2. Call your local poison information center. Give them your telephone number and any information you have available. Follow their directions.

ACTIVITY 18:

Describe four ways that poison may enter the body:

1. _____
2. _____
3. _____
4. _____

OBJECTIVE 19: Describe the symptoms and treatment of seizures.

Victims of seizures usually fall, with the body first becoming rigid, then beginning to jerk and shake. They may make odd noises, roll their eyes, drool from the mouth, and lose control of their bowels and bladder. Unconsciousness can also occur. If you are present when someone is the victim of a seizure, have someone else call for rescue personel while you loosen the victim's clothing. Do not hold or restrain the victim in any way. Clear the immediate area of objects by which the victim might be hurt. Place a soft object, such as a wallet or a rolled handkerchief, in the patient's mouth to prevent chewing or biting of the tongue, but do not pry the patient's mouth open. Check the victim's breathing. If necessary, follow the ABC of life support, administering mouth-to-nose resuscitation if mouth-to-mouth breathing is impossible because the victim's mouth is clamped shut. Check for a bracelet, necklace, or Emergency Medical Identification card describing any medical conditions.

When the seizure is over, the victim may be disoriented. Have the victim lie still and wait for rescue personnel.

ACTIVITY 19:

Mark these statement true or false.

___ 1. Victims of seizures should be restrained so they won't harm themselves.

___ 2. A soft object such as a wallet or rolled handkerchief should be placed in a victim's mouth to prevent the chewing or biting of the tongue.

___ 3. After a seizure is over have the victim walk around to restore circulation to the extremities.

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ANSWERS TO ACTIVITIES

ACTIVITY 1

1. Carbon monoxide.
2. Burns.
3. Heart attack.

ACTIVITY 2

a. Remain calm.
b. Call the correct number.
c. Give business name (if appropriate), street address, and any landmarks.
d. Tell why you called. Give any information about the patient.
e. Do not hang up till all information is given.

ACTIVITY 3:

1. a. Open airway.
   b. Assist breathing.
   c. Restore circulation.

2. a. Victims suspected of having neck or back injuries.
   b. Infants and children.
3. a. Pregnant women.
   b. Obese people.

ACTIVITY 4

1. False.
2. True.
3. True.
4. True.

ACTIVITY 5

1. False.
2. True.
3. False.
4. False.
5. True.

ACTIVITY 6

1. breathe, talk, cannot.
2. four, six.

ACTIVITY 7

1. Keep the victim calm.
2. Keep the victim lying down.
3. Elevate the legs of the victim.

ACTIVITY 8

1. False.
2. True.
3. True.

ACTIVITY 9

1. ABC.
2. constant, direct.
3. do not remove.
4. handkerchief, piece of cloth, your bare hand.
5. elevate, ten or twelve.

ACTIVITY 10

1. Move the patient unnecessarily.
2. Straighten a limb that is misshapen.
3. Push a protruding bone back into the skin.

ACTIVITY 11

should not.

ACTIVITY 12

(Any five.)

1. Feeling of pressure, pain, fullness or squeezing or numbness across the chest and into the shoulders, arm and hand.
2. Unconsciousness.
3. Shortness of breath.
4. Apprehension or fear.
5. Restlessness.
6. Symptoms of shock.
7. Sweating, nausea, and weakness.

ACTIVITY 13

1. Thermal burns should be kept dry and covered with a dry sheet while chemical burns should be flushed with water.
2. All clothes should be removed from the site of chemical burns; while clothes sticking to the skin should not be removed from a thermal (heat) burn.

ACTIVITY 14

1. Dizziness.
2. Weakness.
3. Headache.
4. Cherry red lips.

ACTIVITY 15

Rescue breathing and CPR if required.

ACTIVITY 16

1. True.
2. False.
3. False.

ACTIVITY 17

1. Remove the victim from the source of current.
2. a. Turn the power off by pulling out a plug, tripping a circuit breaker, or removing a fuse.

   b. Push or pull the victim away from the current source with an insulated or nonconductive object, while standing on dry newspapers or a dry rubber mat or a dry piece of wood.

ACTIVITY 18

1. Inhalation or breathing.
2. Ingestion or swallowing.
3. Absorption or through the skin.
4. Injection or through injection into the bloodstream.

ACTIVITY 19

1. False.
2. True.
3. False.